

CKME136 – Capstone Project Initial Abstract

Forecasting Walmart Stores Weekly Sales

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ABSTRACT

Walmart Inc. is a multinational retail company that has more than ten-thousands stores worldwide. Selling all sort of products including, grocery, household items, furniture, clothing, jewelry, electronic and more. Forecasting accurate sales are crucial to Walmart Inc., as it influence management decisions. Based on the prediction of sales, management could better allocate resources for marketing and finding out which departments are doing poorly to maximize profit. The dataset given by Walmart recruitment from Kaggle included weekly sales of 45 Walmart stores (with 99 departments each), general information such as store sizes, temperature and holiday seasons are also provided.

This project seeks to address the following question: Using historical sales data, what will be the weekly sales for the coming nine months for the 45 stores and 99 departments respectively?

Predictive analytics would be the theme for this project. Time series models and machine learning regression models would adopt and compare against each other and be evaluated with performance metric of Weighted Mean Absolute Error (WMAE) as requested by Walmart Recruitment. Time series models included Autoregression (AR), Moving Average (MA), Autoregressive Moving Average (ARMA), Autoregression integrated Moving Average (ARIMA) and Holt-Winters method. Regression models included Linear Regression, Decision Trees, Random forest, K-Nearest Neighbor. Tools such as Rstudio, Python, Weka and Tableau would be used throughout the project. The best model would be used as conclusion, limitations and recommendations will be provided.